THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 31. JULY 31, 1943 VOL. 55.

Heat During Pregnancy in Dairy Cows

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It is widely realised that cows may come on heat while pregnant. Schmalz (1921) refers to it and its connection with superfoetation, Williams (1921) judged that 1 to 2 per cent. of pregnant cows would show oestrus, Bullard (1934) reported on ten cases, and Berge (1942) concluded that it was more common than was formerly thought. Mirskaia and Smirnov-Ugrjumov (1941) detected heat by means of vaginal smears in 21·7 per cent. of 92 pregnant cows. Apart from this report, there seems to have been little attempt to estimate the frequency and practical importance of heat in pregnant cows. Recently a cow showed obvious signs of heat although known from rectal diagnosis and service date to be well forward in pregnancy. In the absence of this knowledge she might well have been disposed of as a poor breeder and it seemed worth while to determine how often this might happen, especially in view of the efforts now being made to deal with infertility. There is also an obvious bearing on the accuracy of pedigree records. Accordingly, a study has been made of those cows in two dairy herds which produced normal full-term calves after apparently short gestations.

Both herds have good breeding records, the number of services per calf being 1·31 in Herd A, and 1·40 in Herd B (excluding services to cows disposed of as sterile). Abortions have been very rare and a recent agglutination test of all animals in Herd A disclosed no reactor. Both herds have been self-contained except for bulls.

Gestation periods for all calves sired on the farms averaged 281·97 ± 4·46 days in 849 pregnancies, excluding those resulting in still-births or twins, or abnormally short as calculated from the date of last service. A standard deviation of 4·46 days is rather smaller than the estimate of five days arrived at by Lush (1937) and Berge (1942), who suggest that the inclusion of pregnancies affected by abortion and other inaccuracies often makes the standard deviation too large.

The exclusion of cows with suspiciously short gestations shortened the tail of the distribution and reduced the standard deviation, on the basis of which the probability that a normal pregnancy will last for fewer than 271 days is estimated at 0·68 per cent. With 849 pregnancies, about six as short as this would be expected to occur. Actually ten were found and included, so that the rejection of individual pregnancies as being abnormally short has possibly not been carried far enough.

Among the rejected data were records of 40 pregnancies resulting in normal viable calves after apparent durations of 267 or fewer days.

After removing records in doubt for any reason, including still-births, there remain 36 which suggest that the cow concerned was on heat and mated, although pregnant. Details of these are given in Table I.

TABLE I. DETAILS OF COWS SERVED DURING PREGNANCY

No.	Breed	Days from Service to Parturition: Pre-conception Service	Probable Successful Service	Post-conception Services: 1st	2nd	3rd	No. of Pregnancy	Sex of Calf	
			Herd A						
1	Ayrshire	395	276	245			6		H
2	"		270	240			3	BB	
3	"	364	278	117			1		H
4	"		275	193			1	B	
5	"	329	278	231			2		H
6	"		274	70			2	B	
7	"		274	98			4	B	
8	"		284	237			1	B	
9	"		283	125	51		2	B	
10	"	306	285	267			4		H
11	"		280	181			1		H
12	Shorthorn		290	150			5	B	
13	"	307	288	264			3	B	
14	"	296	275	160	149	135	2		H
15	"		282	81			2		H
16	"		284	227			1		H
17	"		287	138	123	103	5	B	
18	Ayr. x Short.	303	284	166			2		H
19	"		279	254	232	219	1		H
20	"		280	169			3		H
21	"		288	148			2	B	
22	"		277	256			2		H
			Herd B						
23	Ayrshire		278	263			3	B	
24	"		286	261			2	B	
25	"		279	258			1		H
26	"		274	252			1	B	
27	"		278	258			1	B	
28	"		286	225			4	B	
29	"		285	264			1		H
30	"		277	253			1		H
31	"		286	266	241		1	B	
32	"		277	223			2		H
33	"		280	238			3	B	
34	"		286	264			1		H
35	Jersey	293	279	190			2	B	
36	"		274	224			1		H
	Total No.	8	36	36	5	3	—	18	18

Nos. 6 and 7 refer to the same cow which on a third occasion calved to her first service after 276 days, but came on heat 110 days before calving. Some doubt may be felt as to whether No. 2 should be included since twins tend to have a rather short gestation. No live twin, however (eleven sets) has been born after less than 259 days, and it seems unlikely that rearable twins could have been produced in as little as 240 days.

It is significant that all these unusually short gestations are associated with at least two services, and that calculation of the gestation period from a service prior to the last gives values well within the normal range of variation. Table I is arranged so that column two of the "days from service to parturition" gives the most likely gestation period. The probable lengths of the pregnancies average 280·5 days for Herd A and 280·4 days for Herd B, which are close to the population average of 281·97 days. For eight out of 36 cows there was an unsuccessful service prior to conception.

Altogether, there were 44 matings during pregnancy. Three of the 36 cows returned to the bull three times after conceiving, two more returned twice, and 31 returned once. These are frequencies of actual matings and do not include cases where the cow appeared on heat but was not or could not be served. The actual frequency of heat after conception is thus probably higher than that here shown.

The interval between conception and subsequent heat varies considerably and has occurred at any time from 15 to 232 days after a successful service. Of the 44 matings, 14 occurred within 30 days, 14 from 31 to 100 days, and 16 from 101 to 232 days.

The breeding history of the cows in Table I, both before and after the events shown therein, shows that they have produced 113 calves from 140 services (excluding those after conception). This gives an average of 1·24 services per calf. The exceptional cows in both herds taken separately gave the same result, but owing to the small numbers, the deviations from the herd averages of 1·31 and 1·40 are not, taken singly or together, significant. The possibility that cows coming on heat while pregnant are more fertile than usual is, however, also suggested by the fact that only 8 per cent. of them (2 out of 25) left the herd on account of sterility. In comparison, 18·3 per cent. of all calved cows (including 25 from Table I) which had an opportunity to show heat and be served during pregnancy, and which later died or were disposed of as diseased, were discarded because they failed to conceive after repeated matings or to come on heat although not pregnant.

The distribution of the post-conception matings shows that they can occur in heifers and in any lactation. The following data indicate that they occur during first and subsequent pregnancies in approximately expected proportions if age of cow or number of pregnancy is without effect on the likelihood of her taking the bull during pregnancy.

Pregnancy No.	1	2	3	4	5	6	7	8	9	Total
Services during pregnancy—										
Number ..	14	11	5	3	2	1				36
Proportion ..	0·39	0·31	0·14	0·08	0·06	0·03				1·01
Normal successful services—										
Number ..	409	279	182	107	58	23	9	4	1	1,072
Proportion ..	0·38	0·26	0·17	0·10	0·05	0·02		0·01		0·99

The number of pregnancies on which the expected proportions are based (1,072) is larger than the number used for estimating

normal variation in gestation period (849) because it includes pregnancies resulting in twins or stillbirths and other data.

The frequency of pregnancies during which matings have occurred may be estimated from these data as 3·4 per cent. This is regarded as the lowest admissible value. The actual value may be much higher since cows appearing to be on heat but considered pregnant would not be served and cows not returning to the bull within three months would not be so closely watched for heat. In practice, the observed frequency will clearly depend on the skill of the herdsman in detecting heat, and on whether or not the cows run out in winter. It is likely that, in the present data, there have been also a certain number of cows accepted as having pregnancies of about 270 to 275 days which have in fact been pregnant for 290 to 295 days.

Table I shows that if the twins are counted as one there have been 18 bull calves and 18 heifer calves involved, so that sex of foetus seems to be without effect on the likelihood of a cow coming on heat while pregnant. Table I includes cows of all breeds and crosses kept and there is a rough correspondence between the numbers of each breed or cross and the numbers of affected cows.

Discussion

Mirskaia and Smirnov-Ugrjumov (1941), using vaginal smears as a test for heat, found that 21·7 per cent. of their 92 pregnant cows showed marked signs of heat after being in-calf for one to five months and were served. If the genotype and environment of their cows did not induce an unusually high frequency of heat during pregnancy, it seems likely that the manifestation of heat in pregnant cows is less obvious than in non-pregnant ones and that it would often be missed. The same authors claim that there is no ovulation with such "pseudo-heats." While this is probably true as a rule, ovulations may sometimes occur in spite of the suppressing effect of progesterone from the corpus luteum. Ovulation during pregnancy in the mare has been reported by Cole, Howell and Hart (1931), and Miller (1938) says that it is by no means uncommon for a mare which is already pregnant to come into season, and if allowed, to mate. Heat and ovulation might occur together in the cow and create the necessary conditions for the occurrence of occasional superfoetation, although it would be difficult, without suitable genetic or other evidence, to distinguish twins produced in this way from twins of unequal size arising in the normal way.

Mirskaia and Smirnov-Ugrjumov also suggest that the amount of oestrogens in the blood is sufficient to bring on heat in spite of the depressing effect of the corpus luteum hormone. The variable amount of oestrogens which may account for the presence or absence of heat during pregnancy, and for the varying number of times an animal is observed to be on heat during a single pregnancy, could arise from physiological differences (in, for instance, the activity of the pituitary) which may be characteristic of individuals and be genetic in origin.

If it can be shown that heat during pregnancy is associated with high fertility as the present data suggest, the diagnosis of heat during pregnancy would provide a fairly simple method of identifying for breeding and selection purposes those animals which are most desirable from the point of view of fertility.

From the immediate practical aspect, heats during pregnancy appear to be frequent enough to provide further justification for more general use of rectal diagnosis of pregnancy and less reliance on signs of heat as evidence that a cow is not in-calf, especially if it is some months since she was first served, and she is valuable for breeding. The number of errors likely to be caused in herd-book entries is diminished by the high proportion of one-sire herds, and by the extent to which the same bull is used for each service to the same cow. The paternity of a good strong calf of the larger breeds of cattle may be held doubtful if the gestation period appears to last less than 268 days and the dam has been mated about 280 days before calving to a different sire. The chances are that the real sire is the earlier mate. As regards estimates of the duration of pregnancy, some error is probably often introduced through failure to allow for services during the early stages of pregnancy. If 5 per cent. of gestation periods as calculated were 20 days too short, the mean length would become one day less than its true value.

Summary

Forty-four cases of heat and service to dairy cows during pregnancy are described. The occurrence of heat during pregnancy appears to be independent of the age and breed of the cow and of the sex of the foetus. It occurs at any time in the first six months, but most frequently in the first to third months. Five cows came in season twice and three of these came on heat at least three times after conception. The significance of heat during pregnancy in relation to fertility, pregnancy diagnosis and paternity is discussed.

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The Planning of the Veterinary Profession's Post-War Activities in Scotland*

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When I accepted your Secretary's invitation to contribute to to-day's discussion on Planning of the Veterinary Profession's Post-War Activities in Scotland, I did not appreciate at first the difficulty of confining myself to such a narrow field. The more I thought about the subject the more impossible did it become to plan for Scotland alone. Our profession in England and Scotland is so essentially linked and bound together that plans for the one country must affect the other and I have been forced to express my views on post-war planning for the profession in Britain as a whole.

I was asked to discuss this subject from the point of view of the research worker but many members of our profession undertake research although they are not officially designated research officers. I shall therefore not confine my remarks to those who happen to find themselves members of a research institute. My remarks do, however, apply primarily to teaching centres, research institutes, the Veterinary Advisory Service and the whole-time veterinary members of the administrative and field staff of the Animal Health Division.

At the present time our veterinary colleges, the research institutes and the Veterinary Investigation Service are to a great extent dependent on State funds and the Animal Health Division in all its departments is practically wholly dependent upon State funds. My first suggestion is that education, research and investigational services, together with the existing Animal Health Division, should come under one unified organisation; in other words, that all the members of these services should be acknowledged State servants. But fundamental changes in these services and in the filling of the posts, particularly the key positions, in the services must at the same time be made.

The basis for all sound veterinary activities is a good undergraduate education. To obtain this the existing veterinary colleges situated in large towns should be abandoned for the teaching of third year and more senior students and their place should be taken by new educational centres, one in Scotland and not more than two in England, each situated in an agricultural area primarily devoted to stock keeping.

As an integral part of each educational centre there should be :—

(1) A modern and large abattoir.

(2) A large and model knackery that has the monopoly of the collection of casualties among the farm animal population for a radius of 30 miles.

(3) A hospital for the reception of animals that are ultimately destined for the knackery.

(4) A hospital for animals received for treatment or brought in for demonstration purposes.

All of these integral parts of this centre of education would be directly under the jurisdiction of the principal of the centre. Full facilities must be provided for study of material passing through the abattoir, the knackery and the hospital. These include adequate staff, buildings, *post-mortem* rooms, laboratories and theatres for the manipulation and study of interesting material, both living and dead. The knackery might usefully be under the charge of the department of pathology and the hospital under the management of the clinical department.

A flourishing medical school is dependent upon the hospital and *post-mortem* room. The educational centre I have outlined would flourish if staffed to deal adequately with the great quantity of clinical and pathological material that would flow through the centre.

The undergraduates at the educational centre would profit. In pathology fewer hours would be spent in the lecture room and the dull inspection of specimens in bottles would be reduced to a minimum. Instead, more time would be devoted to study at the *post-mortem* table and every student would acquire a technique

* Contribution to discussion by the Scottish Branch, N.V.M.A., Glasgow, March 24th, 1943.

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invaluable to him in later life and a living interest in the study of disease. The hospitals would provide the clinical material so necessary for teaching purposes and many of the clinical observations and deductions made by students could be checked at the *post-mortem* table. Abundant material would be available on which to practice the valuable art of record making and keeping and on which to make observations and draw deductions.

The college farm for normal livestock which is fashionable to-day would be unnecessary. Indeed, the value of herds or flocks of normal animals can be greatly over-emphasised. The experience of agricultural colleges shows that the value of these flocks and herds is very limited when the number of animals kept is small, and when the number increases the clash between managerial interests and teaching interests which inevitably arises generally results in the teaching interests becoming subordinated. The cattle, sheep and pigs may be inspected by the students but they are not handled, fed or cared for by student labour.

With a hospital of patients destined for the knackery, managerial or economic interests will not compete with teaching interests and the animals, besides providing a variety of diseased conditions, could be used for instruction in animal husbandry and management.

Additional benefits that would accrue from the establishment of centres on the model which I have outlined would be :—

(1) The collection of better data on the diseases affecting animals destined for slaughter for human food.

(2) A much fuller knowledge of the causes of loss and wastage in farm stock than is now available when no systematic examinations are made and no records kept of the diseases of animals passing through knackeries.

(3) Research problems would force themselves forward demanding attention. The staffs at the educational centres would be in the most advantageous position to study these problems and inevitably education and research would develop together. Independent research centres would be unnecessary and would be absorbed by the educational centres except for the Weybridge Laboratory, which would continue to function as a place for the production of diagnostic agents, vaccines and sera.

(4) The veterinary investigation centres, instead of remaining as at present impoverished, isolated units whose officers have no chance of promotion no matter how hard or efficiently they labour, would be incorporated in this extended educational and research service and become branch laboratories each attached to the appropriate centre which would be responsible for the adequate staffing and equipment of its branch laboratories.

(5) With the development of teaching and research the educational centre would become the vital centre for post-graduate study of veterinary subjects where definite courses would be conducted and where individuals anxious to select a problem for study and guided research would have opportunities and an abundance of problems awaiting them.

So far I have dealt with the need for improving education and research without indicating where the field and administrative branches of the Animal Health Division become part of a unified service. If these branches were an integral part of the service, surely it would make for much closer co-ordination between research on disease and the control of disease in the field. Furthermore, we do not wish a hard-and-fast division between the different branches of the service. Men with experience in education and research might with advantage to all be transferred to administrative or field work and well-trained men working in the field might with equal advantage be transferred to education and research. In each case the experience gained in one branch of the service might very well be used to quicken and stimulate work in another branch. At the present time there is too much isolation of men in one place, at one institute or college and insufficient opportunity is given for individuals to find the most suitable environment for their abilities. Isolation would no longer exist and act as a cramping influence when movement and promotion within a large and varied service was possible.

I now come to a most important problem, namely, the means by which we are going to ensure efficiency, energy and enthusiasm among the workers of this enlarged State service. The stultifying influences cramping the work of the Animal Health Division to-day must be abolished. It is evident that in the Animal Health Division small sins of commission are often regarded as far more serious crimes than many large sins of omission. Initiative and enthusiasm are not encouraged. These stultifying influences can be overcome by the election of the proper men to the most important or key positions in the service. The selection of the men to fill these key positions must not be left to seniority and a history sheet on which no serious lapses from the rules or orders are recorded but which may contain few records of original or earnest endeavour. Those most fitted to select the leaders are the veterinarians themselves in the services and the election of men to fill the key positions of Chief Veterinary Officer, Assistant Chief Veterinary Officers, principals of educational centres, etc., should be by the ballot of the veterinary members of the services, possibly only those who have already spent five or more years in the service. In order to prevent any one man from exercising an influence that his fellow veterinarians may come to regard as detrimental, election to a key position should be limited to a period of five years. This time should be sufficient for a man to prove his ability when he would be eligible for re-election but only for one further period of five years. As the relinquishment of such a post and reversion to a less responsible but still senior position would be the accepted order it would not be attended by a loss of personal dignity or prestige.

The system suggested would provide a greater number of opportunities for men of ability and a chance for these men to exercise their talents while they yet had the vigour of early middle age. The key positions would therefore not, as so often happens at present, be held by men with diminishing energies who are approaching the retiral age.

One other principle I should like to see established is that contained in the term "Sabbatical Year," which means that every seventh year a man is given an opportunity to leave for a period what he has been doing to study or carry on his researches in a fresh field or in a new environment. We all have met our colleagues from the Dominions who after a period of work in their own country have visited Britain and the European countries, and often America, where they have benefited from study and from contacts made with fellow workers. We in this country also require a break from our duties whether they be teaching and research or field work and would benefit greatly by a period of study leave. By this means a man who may be working in the field might seek the opportunity of fitting himself for other work in which he was interested at an educational centre or one of its branch laboratories, and workers engaged at these centres and laboratories would take the opportunity of acquiring new knowledge.

One point regarding undergraduate education in the post-war period. We all hope the standard of education over the country will rise and it is probable that greater numbers will present themselves for entry as students than can be usefully absorbed into the profession, and higher entrance qualifications for studentship may be necessary in the future. If this comes about I suggest that every student must show that he possesses a good knowledge of the German language and one other European language besides English before he be accepted. The reason for selecting German is obvious ; a great volume of scientific literature is published in that language, and with a knowledge of German a veterinarian would be at home in the majority of Continental veterinary circles.

It is important that our veterinarians keep abreast and lead in post-war veterinary matters. To do this we should be prepared to be more cosmopolitan and less insular, and the better linguists we are the more readily will this be accomplished. The habit of breaking with insularity should begin during the formative days of studentship and arrangements should be made whereby every student should spend at least three months of his vacations during the final two years of his course working at a veterinary college or at a veterinary institute, or as a pupil to an authorised veterinary surgeon on the Continent of Europe. By so doing his knowledge of men, affairs and of his own work would be enriched and he would thereby be better fitted for the duties that lie ahead of him.

A CHEMICAL DINNER

The Geneva Correspondent of *The Times*, in a recent message to his paper, writes: "A dinner, claimed to be the first of its kind in Europe, was served in Lausanne to find out to what extent chemistry may come to the help of the country's economy. The guests, who included some food experts, were offered *hors d'oeuvres* made of chemically treated cellulose, to which a flavour was given by products derived from coal. The principal dish was 'meat' made from wood pulp, with synthetic gravy, but the vegetables, though most of them new to this country, were genuine. The sweet contained vanilla taken from coal, while the cream came from the same sort of cellulose which supplied the *hors d'oeuvres*.

"The chemists who were responsible for the experiment were the hosts at the dinner, and are convinced that they may thus save Switzerland from famine, in the event of all imports being cut off. They state that the cost of the dinner was much lower than if the equivalents in natural food had been served, but that the nutritive qualities were the same. It is claimed that flavour makes it impossible to recognise chemical from natural food."

THE VETERINARY RECORD

July 31st, 1943

HUMAN TUBERCULOSIS IN WAR

VITAL statistics have shown a significant increase in human mortality due to tuberculosis since the outbreak of war in September, 1939. In the pre-war period, between the years 1928-1939, there had been a steady and gratifying decline in the number of cases reported annually. It is particularly disappointing, therefore, that there has been a reversal of this trend which is naturally regarded with great concern by those in authority. In 1928, the deaths from all forms of tuberculosis in England and Wales amounted to 36,632, but by 1939 the number had been reduced to 25,623. In 1941, however, there was an advance to 28,667; both respiratory and non-respiratory forms were responsible for the increase. Although the total deaths in 1939 were much less than in 1914 (50,298), the over-all increase in the period 1939-1941 was 12 per cent. as compared with 6 per cent. in 1914-1916; in other words the retrogression in this war has been twice as severe. A recent report[1] by a Committee of the Medical Research Council, having reviewed available evidence, gives some practical recommendations as to the manner in which the position may be retrieved.

There are many factors which may be held responsible. The part played by malnutrition in the aetiology of the disease is now generally recognised. In the 1914-1918 period defective nutrition, especially shortage of first-class proteins and fats, was largely accountable for the increased incidence. In this war, the nutritional requirements of young children have been met by priority supplies of protective foods and, in particular, of milk, but the adult population may not have received adequate quantities of the latter commodity, particularly during the winter months. Account must also be taken of the effect of aerial bombardment with its concomitant physical and psychological strains, fatigue resulting from long working hours, bad travelling conditions and increased chances of spread through temporary overcrowding and the impairment of ventilation due to "black-out" conditions.

It is very probable that the circumstances which have brought about the increase in tuberculosis operate in different degree on the various age groups. It is noticeable that there is a tendency to attribute the higher incidence amongst young children to the consumption of tuberculous milk and this has accounted for the strong pressure which has been exercised to force the introduction of compulsory pasteurisation. This subject was fully discussed at a recent meeting of Council, N.V.M.A., at which the following resolution was carried: —

"The need to improve the health of dairy herds and the methods of clean milk production is imperative and quite independent of the question of pasteurisation. The National Veterinary Medical Association recommends that the Government should assist farmers to bring this about as a part of its programme of social medicine. The foundation of this programme should be the purchase of milk from the farmer on a quality basis. The Association recognises the considered view of the medical profession that, in the interests of public health, milk should be pasteurised to prevent the danger of pathogenic germs of human and bovine origin contaminating it under present methods of production and distribution. The Association, however, wishes to emphasise the dangers which must be carefully guarded against if pasteurisation is to be made compulsory. The efficiency of commercial pasteurisation and distribution of milk must be raised and maintained at the level necessary to safeguard public health. Pasteurisation must not impede methods designed to improve the health of dairy cattle."

In view of the serious damage which is being inflicted on the child population, it is most gratifying that the Government has taken immediate action to improve the milk supply as outlined in the White Paper which was published *in extenso* in our issue of July 17th. The long-term policy which is envisaged, if pressed to its logical conclusion, will be of great value both in increasing the safety of the milk supply and in improving the health of our dairy herds, but immediate results cannot be expected. For this reason we welcome the proposal of the Ministry of Food to exercise closer control over milk as it reaches the consumer. The recommendation that in suitable areas the compulsory heat treatment of milk shall be enforced, is a step in the right direction and falls in line with the proposals recently advanced by the People's League of Health[2] in a memorandum sent to the Government and with the report by G. S. Wilson.[3]

Whilst, however, due consideration must be given to the infection of the milk supply as a cause of infant tuberculosis, it would be erroneous to assume that the greater part of the increase in children is attributable to the consumption of infected raw milk or that there has been a significant deterioration in the position. It is particularly noticeable, as pointed out in the report of the M.R.C. mentioned above, that throughout the country there has been a substantial increase in respiratory tuberculosis in children, *i.e.*, of a form of the disease which is largely attributable to contact with human infection. In addition, the large cities and towns have not escaped; for example, there has been a considerable increase in tuberculous meningitis amongst children in London where the bulk of the milk is subjected to some form of heat treatment. It would appear, therefore, that even in the young, the human type of tubercle bacillus is largely responsible for the recent increase in the disease.

A concerted effort by the medical and veterinary professions is needed to arrest the increased incidence of tuberculosis. We have already, in a recent editorial, expressed our appreciation of the policy which has been adopted by the Ministries of Agriculture and Food. For our part, we shall continue to encourage the distribution of a safe milk supply by all the measures at our disposal, *viz.*, pasteurisation, eradication of tuberculosis from our herds and more stringent and frequent inspection of dairy cattle.

[1] Medical Research Council, Report of Committee on Tuberculosis in War-time (1942). Spec. Rept. series 246. H.M. Stationery Office, London.
[2] Memorandum People's League of Health, 1943.
[3] Wilson, G. S. (1942.) *The Pasteurisation of Milk.*

THE WELLCOME FOUNDATION

Impending changes in the senior scientific staff of the Wellcome Foundation include the retirement of Dr. C. M. Wenyon, F.R.S., Director-in-Chief of the Wellcome Research Institution and Director of the Wellcome Bureau of Scientific Research. After more than 36 years of fruitful association with the research laboratories founded by Sir Henry Wellcome, Dr. Wenyon has agreed to retain the former appointment until next year, when Dr. C. H. Kellaway, F.R.S., at present head of the Walter and Eliza Hall Institute in Melbourne, will be able to succeed him. Colonel N. Hamilton Fairley, F.R.S., now Director of Medicine with the Austalian Army in the Pacific, is to be the new Director of the Bureau of Scientific Research, which will be amalgamated with the Wellcome Chemical Research Laboratories (London) when Mr. T. A. Henry, D.Sc., their present chief, retires at the end of next month. Further development of the chemical research laboratories at Beckenham is planned for the period immediately after the war. In the United States Dr. Erwin E. Nelson, of Tulane University, has been appointed to take charge of the Wellcome Research Laboratories at Tuckahoe, N.Y.

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Weekly Wisdom

It would seem, Adeimantus, that the direction in which education starts a man will determine his future life.—Plato. Republic IV.

CLINICAL COMMUNICATION

Mustard Gas Poisoning in the Horse

JOHN F. WATSON, M.R.C.V.S.,
Milnathort

Subject.—A six-year-old Welsh pony.

History.—This pony was owned by the military authorities, and had been grazing for several weeks past in a field adjoining the camp. The animal was noticed to be very dull one evening, and on the following morning considerable salivation and distress was apparent. There was complete loss of appetite.

Clinical Symptoms.—The initial picture was one of extreme nausea—ears drooping and head down. There was profuse salivation from the mouth and every few minutes the pony dipped its nose into a nearby trough of water.

Temperature was 99·7 F, pulse rate 89 and rather weak. There was obviously pain in the mouth region, which was causing the animal to smack his lips. The excess of saliva was causing fits of coughing accompanied by slight dyspnoea.

An examination of the mouth revealed large wrinkled areas of dead skin, involving the inside of both lips, cheeks and tongue. The latter organ was swollen and very painful to the touch. Numerous large ulcerous sores were apparent on the mucous membrane, while the breath had a slight smell, suggestive of onions. The eyes appeared quite normal, and no other visible lesions were present.

Diagnosis.—This subject had obviously been in contact with a corrosive irritant poison. It was learned from the Adjutant that recent militaty exercises had entailed the use of yperite (mustard gas). The pony was grazing in close proximity to the infected compound.

Prognosis.—The contamination appeared to be moderately slight and damage to the regions of the mouth seemed superficial. There were no real deep-seated ulcers present. However, under the circumstances a guarded prognosis was given.

Treatment.—The entire mouth region was, as far as possible, freely flushed with a solution of bicarbonate of soda (one dessertspoonful to a pint of water). The eyes and nostrils were sponged with a solution of boracic acid. The mouth was thereafter swabbed out three times daily with a solution of 1-1000 acriflavine. As a precautionary measure, the feet and legs were thoroughly washed with soft soap, warm water and soda carbonate. The water in the drinking trough was replaced by a solution of bicarbonate of soda.

The diet consisted of soft food, such as bran, boiled grain and carrots.

A dose of ammonium carbonate was administered by the stomach tube.

Sequelae.—Large necrotic areas were shed from the mucous membrane of the mouth, but this was soon followed by a healthy granulating wound. The animal commenced to feed after two days, after which it thrived very well.

ABSTRACT

[NUTRITIVE VALUE OF CERTAIN FISH MEALS AS DETERMINED IN TESTS WITH SWINE AND RATS. Barrick, E. R., Vestal, C. M., and Shrewsbury, C. L. (1943.) *J. Agric. Res.* **66**. 125.]

Pigs were reared to bacon weight on rations in which menhaden, sardines and herring fish meals were compared as protein supplements. These three meals were shown to be practically of equal nutritional value with a slight bias in favour of the sardine meal. In further trials, employing rats as experimental animals, a larger number of fish meals were used as supplements to maize to raise the total protein content to 14 per cent. with adequate amounts of cod liver oil and mineral salts to balance the rations. These trials demonstrated some differences in respect of palatability and nutritive value. Sardine and white fish meals were superior in palatability to menhaden and herring meals, and sardine meal was slightly superior to other meals in both palatability and nutritive value. The experiments were carefully controlled and the results were statistically significant. Herring meal was shown to be the least palatable but had a nutritive value almost equal to that of sardine meal. The nutritive value of each was superior to that of menhaden meal. The practical value of these findings in regard to pig feeding is briefly discussed.

A. E.

"A Safe Milk Supply"*

In a memorandum entitled as above and submitted to Government, the People's League of Health gives consideration to the scientific and commercial aspects of the question.

Attention is drawn to the now well established facts regarding milk-borne infections, *viz.*, that about 2,000 deaths, mostly in children, and at least 4,000 fresh cases occur annually as the result of bovine tuberculosis. Further, that other diseases such as undulant fever, scarlet fever, septic sore throat, food poisoning, diphtheria, the enteric fevers and dysentery may be spread through raw milk, the number of these infections being in the aggregate, considerable.

It is stated that "Accredited" milk is no safer than ordinary raw milk and that in fact the L.C.C. figures† for 1936-41 "showed in every year but one a higher percentage containing tubercle bacilli in Accredited milk over raw ungraded milk." Further that, whilst reduction of tuberculosis in cattle is valuable as a long-term policy, "financial and administrative considerations make it impracticable . . . for a great many years," and that this reduction would have no effect on the other diseases spread by raw milk.

It is concluded that, when properly carried out, pasteurisation destroys all pathogenic bacteria found in milk without injuring its nutritive value in any way, and that by licensing, inspection and the use of the phosphatase test its efficiency can be adequately controlled.

Various trade objections to compulsory pasteurisation are discussed.

Recognising the impracticability of immediate universal pasteurisation the following suggestions are made: (1) That any compulsory pasteurisation order should for the present be limited to large urban areas such as over 10,000, and that during this period pasteurisation of milk for T.T. or Attested herds be not compulsory. (2) That the smaller urban and rural areas should have the same powers after application to and approval by the Ministry of Health, and (3) that after a suitable period these compulsory pasteurisation requirements be extended to all milk supplies.

† These figures have to be interpreted with caution. They do not mean that a higher percentage of cows in accredited herds are infected, nor that the average number of tubercle bacilli per gallon is not less, because their significance in these connections is influenced materially by the size of the herds concerned. Accredited herds are on the average at least twice as large as herds producing ungraded milk and the chances of any given sample containing tubercle bacilli are correspondingly increased—even though the percentage of infected cows is smaller. The inference left to be drawn by the P.L.H. statement quoted—that veterinary inspection of accredited herds is of no value in reducing T.B. in milk—is therefore erroneous. If no veterinary examination was made, it would be expected that bulk milk from accredited herds would contain tubercle bacilli much more often than milk from ungraded herds—probably twice as often—simply because the herds are larger.—*Editor.*

* Memorandum on the Compulsory Pasteurisation of Milk (1943). People's League of Health, 10, Stratford Place, London, W.1.

ROYAL COLLEGE OF VETERINARY SURGEONS

Membership Examination (July, 1943)

List of Successful Candidates

(*Continued from page* 295)

Edinburgh

First Year:

Andrew, Hubert	Horrox, M. A. (B)
Borthwick, Ramsey	Kerr, W. J.
Bottomley, P. J.	Macdonald, John
Bownass, R. C. (C)	Marr, Alfred
Bruce, I. H. M.	Miller, I. R. G.
Buie, Andrew	Murchie, Wm.
Chadwick, I. M. (B)	Paterson, J. D. (B)
Colebrook, Frank	Thomas, Philip
Donald, L. G. (C)	Waterston, R. F.
Duncan, J. M.	*Wilson, J. C.
Dyce, K. M. (B)	Wilson, J. M.
*Hare, W. C. D.	Wilson, W. J.

* Denotes 2nd class honours.
(C) Denotes credit in Chemistry.
(B) Denotes credit in Biology.

SECOND YEAR:

Clarke, A. V.
Fletcher, R. B.
Gledhill, G. G. (H)
Hezlett, R. K.
Hogg, Anthony (P)
Jordan, Wm.
Lambert, P. S.
Leach, J. L. R. (P)
*Maclean, M. W.
Marshall, P. M.
Olivant, J. M.
Scott, G. R.
Slee, Alan (P)
*Smith, J. H. C.
Towse, G. H. H.
Wight, P. A. L. (P)
*Wilson, J. B.

* Denotes 2nd class honours.
(P) Denotes credit in Physiology, etc.
(H) Denotes credit in Histology, etc.

THIRD YEAR:

Archer, Dennis (A) (H)
Baillie, J. R.
Banks, P. N. (H)
Beynon, R. S.
Blamire, R. V. (A) (H)
Bridge, P. S. (A)
*Duncan, George
Fairclough, R. R.
*Grant, D. L.
Gray, G. M.
Hanscom, Raymond
*Harding, H. P.
Hill, R. L.
Langridge, R. N. T.
McCartney, W. D. J.
Newlands, T. B.
Osborne, A. D. (A) (H)
Potter, Robert
Preston, P. T.
Sharman, G. A. M.
Steven, H. J. (A)
Wallace, R. J. L. (Pharm)
Wildbore, J. J. S. (A) (H)

* Denotes 2nd class honours.
(A) Denotes credit in Anatomy.
(H) Denotes credit in Hygiene.
(Pharm) Denotes credit in Pharmacology.

FOURTH YEAR:

Barrow, D. B. V.
Brown, David
Chambers, T. A. M.
Clarke, A. J.
Conn, W. B.
Coveney, P. V.
Cowie, R. S.
Davie, John
*Duncan, L. J. P.
Edgar, James
Fennell, Clement
Ferguson, G. S.
Geary, T. C.
Gibson, G. M.
Gunstone, J. W.
Hooton, J. K.
Jobling, Richard
*Latimer, G. E. M.
Letham, John (Paras)
McIntyre, W. I. M.
Mackellar, J. C.
MacLennan, K. J. R. (Paras)
*Moody, F. C.
Nisbet, D. I.
Rees, L. F.
Salisbury, Norman
Scott, H. M.
Sim, L. S.
Snodgrass, Nigel
Stephenson, F. D.
Stirling, John
Thomas, P. D. I.
Vickers, T. A.
Walker, J. A. G.
Wilson, Alexander

* Denotes 2nd class honours.
(Paras) Denotes credit in Parasitology.

FINAL YEAR:

Bell, R. L.
Bruce, Wm.
Cameron, J. A.
Coombs, R. R. A.
Crichton, D. R. V.
*Donald, D. E.
Garside, Peter
Geary, John
Girvan, R. F.
Holmes, Graham
Laing, A. H.
McCormick, W. J. M.
Machin, J. H.
McIlroy, Gingles
Mackay, Allan
McKinnon, M. M.
Maclachlan, G. K.
McMillen, F. H.
Macnaughton, R. R.
Melrose, D. R.
Muir, John
*Smith, G. F.
Snalem, H. E.
Spence, Tom
Stuart, Peter
Wauchob, R. D.

* Denotes 2nd class honours.

Liverpool

SECOND YEAR:

Arthur, T. H.
Forrest, E.
Green, L. H.
Lloyd, W. H.
Ockey, J. H.
*Wilkinson, G. T.

* Denotes 2nd class honours.

THIRD YEAR:

Ash, Miss D. M. (Pharm)
Beaumont, Wilfred
Egginton, Miss D. M. (A)
Evans, J. R. (H)
Evans, S. D. S. (H)
Hughes, A. L.
Hull, P. N. (A) (H)
Miller, P. G.
Roberts, T. O.
Wynne, I. M.

(A) Denotes credit in Anatomy.
(H) Denotes credit in Hygiene.
(Pharm) Denotes credit in Pharmacology.

FOURTH YEAR:

Fox, H. J.
Kay, R. S. (Path)
Maddocks, J. R. (Path)
Miscampbell, K. I.
Robinson, Peter
Tudor, J. E.

(Path) Denotes credit in Pathology.

FINAL YEAR:

Chapman, F. A.
Ford, E. J. H.
Harries, J. O. (S)
Hunnam, Robert (S)
Jennings, A. R. (S)
Loosmore, R. M.
McLaren, I. S.
Parkinson, J. D.
Saunders, C. N.
Singleton, A. G.
Towers, K. G.
Wood, J. C.

(S) Denotes credit in Surgery.

Dublin

FIRST YEAR:

Adams, E. K. (C)
Alford, G. A. (B)
*Devereux, J. A.
Dineen, Joseph
Farrell, Joseph (B)
Ferguson, Miss M. D. R.
Ford, L. P.
Gormley, P. D.
Higgins, J. P. (B)
Keane, C. J.
Layng, J. E.
Lynch, T. J.
McNamara, E. J.
*Martin, Hugh
Murphy, J. McD.
O'German, David
O'Hare, O. C. (B)
*Prendergast, W. J.
*Shiel, J. C.
Woods, R. H.

* Denotes 2nd class honours.
(C) Denotes credit in Chemistry.
(B) Denotes credit in Biology.

SECOND YEAR:

Casserley, Patrick
Coard, E. F. (P)
Cremin, C. J.
*Daly, P. J.
Finn, J. J.
Hirsch, E. A.
Hutchinson, R. W.
*Lynch, Richard
McAufield, R. J.
McCarthy, J. K.
*McDermott, M. J.
Maher, K. J. (H)
Moffitt, T. F. (P)
Monaghan, D.
Murphy, T. (Palatine) (H)
*Murphy, T. (Dublin)
Nicholson, J. T.
O'Brien, Cornelius
O'Scanaill, T. (H)
O'Leary, Harry
O'Sullivan, Edward (H)
Powell, W. V.
Quinn, P. G. (H)
Redahan, B.
Twomey, Michael
Wolohan, J. J.

* Denotes 2nd class honours.
(P) Denotes credit in Physiology.
(H) Denotes credit in Histology.

THIRD YEAR:

Burgess, S. R.
*Burke, W. L.
Bryson, Hugh (A)
Canavan, R. J.
Clyde, D. H.
Cooney, John
Corcoran, C. J. (H)
Cronin, M. T. I. (Pharm) (H)
Crooks, David (A)
DeLacy, T.
Donnelly, J. G.
Dromey, Wm.
Farrelly, B. T. (A)
Hamilton, A. H. (H)
Hatton, R. D.
*Hill, H. J.
Jordan, Hercules (A) (H)
Lynch, Vincent (H)
Lunny, W. J. (A) (H)
McCrea, G. H. (A)
McGettigan, C. J.
McGuinness, T. P. H.
McNally, G. K.
Molloy, P. F. (A)
*Murphy, M. A.
Nolan, Francis
O'Donnell, B. L.
O'Shaughnessy, T. M. (A)
Richardson, J. P. (H)
Sheahan, Miss M.
Sherriff, R. B. (Pharm) (H)
Simpson, T. T. (A) (H)

* Denotes 2nd class honours.
(A) Denotes credit in Anatomy.
(H) Denotes credit in Hygiene.
(Pharm) Denotes credit in Pharmacology.

FOURTH YEAR:

Corridon, Maurice
Dancey, G. F.
Dwyer, A. J.
Earnshaw, R. E. (Paras)
Fay, T. G.
Finlay, J. T.
FitzGibbon, J. P.
Gilmore, R. A. (Paras)
Hobson, Johannes
Kelly, D. L. (Paras)
King-Hall, R.
McCarroll, P. J.
Marshall, J. V.
O'Farrell, J. D.
Tufts, F. A.
Wolfe, F. E.

(Paras) Denotes credit in Parasitology.

(To be concluded)

QUESTIONS IN PARLIAMENT

Bovine Tuberculosis (Immunisation)

Major York asked the Minister of Agriculture whether it is the intention of his Department to encourage, or to ignore, the homoeopathic treatment for immunising cattle against tuberculosis, which has been brought to his notice?

Mr. Hudson: I would refer my hon. and gallant Friend to my reply to my hon. Friend the Member for Ashford (Mr. E. P. Smith) on June 3rd, in which I said that there is no scientific evidence that homoeopathic treatment has any value for immunisation against tuberculosis.

Major York: Is the Minister aware that there are already over 80 dairy farmers using this treatment; and is it not, therefore, in the interests of the industry that he should look into the matter?

Mr. Hudson: No, Sir. I have said that there is no scientific evidence available so far as I am aware.

Major York: Is it not that the veterinary profession would lose business by its adoption?

Milk Pasteurisation

Mr. Rickards asked the Parliamentary Secretary to the Ministry of Food whether he will issue a White Paper giving his reasons for recommending that many people should be obliged to drink pasteurised milk, although for various causes they strongly object to doing so?

The Parliamentary Secretary to the Ministry of Food (Mr. Mabane): My Noble Friend has nothing to add to what has been said in Command Paper 6454.

Mr. Leach: Can there be any reason for advocating this if you have got the right stock?

Mr. Mabane: I have nothing to add to my answer.

Dr. Edith Summerskill: In view of the fact that the Minister has advocated the use of pasteurised milk, why does the new milk scheme provide for the distribution of accredited milk?

Mr. Mabane: I think that is a different Question from the one on the Paper.

Mr. Rickards: If the Minister has a good case, would it not be a very good thing to publish it to help to persuade many people in the country who are so opposed to this scheme? Is it not better in a democratic country to use persuasion?

Mr. Speaker: This appears to be an argument, and not a Question to ascertain facts.

Milk Producers (Higher Grades)

Major York asked the Parliamentary Secretary to the Ministry of Food the number of producers of milk of tuberculin-tested and attested standard who sell to the Ministry of Food at May 31st, 1942, and May 31st, 1943, and the number of producer-retailers of this quality milk on the same dates?

The Parliamentary Secretary to the Ministry of Food (Mr. Mabane): The estimated numbers of wholesale producers and producer-retailers of milk of tuberculin-tested and attested standard on June 1st, 1943, were 2,280 and 1,030 respectively. The corresponding figures for June 1st, 1942, were 2,190 and 1,110.

Major York: Can the hon. Gentleman give an assurance that his Department is undertaking the necessary research to find out all the statistics on the subject of tuberculin-tested milk produced?

Mr. Mabane: We are doing our best.

Major York asked the Parliamentary Secretary to the Ministry of Food whether he will give an assurance before any Regulation is made scheduling areas in which milk shall be heat-treated that the Regulation will only be applicable in areas in which a rationalisation scheme is then in operation, and where the population exceeds 10,000?

Mr. Mabane: I would refer my hon. and gallant Friend to paragraphs 26-28 of the Command Paper "Measures to Improve the Quality of the Nation's Milk Supply" to which I have nothing to add at present.

Warble Fly

Lieut.-Colonel Sir Thomas Moore asked the Minister of Agriculture whether he is aware of the successful treatment of the warble-fly pest by the use of salt and water; and whether he proposes to take any action to encourage the use of this simple remedy?

Mr. Hudson: I am not aware that salt and water have been used successfully for destroying the maggots of the warble fly, but I shall be happy to consider any information which my hon. and gallant Friend can supply.

Sir T. Moore: In view of the great loss of leather and beef through this pest, would not the Minister himself explore all the simple remedies that are possible, rather than throw the responsibility upon me?

Domestic Animals (Food)

Flight-Lieutenant Challen asked the Parliamentary Secretary to the Ministry of Food whether he is aware of the great distress caused to large numbers of people who are compelled to destroy their domestic animals owing to failure to obtain horseflesh; and whether he will consider the desirability of introducing a system of rationing horseflesh in order to remedy the situation?

Mr. Mabane: No, Sir, I am advised that present supplies, together with dog biscuits and proprietary foods should suffice, with such unavoidable household waste as should be supplied to unproductive animals to meet reasonable requirements. The manpower required for the rationing of horseflesh could not be justified in existing circumstances.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Aug. 4th.—Meeting of the Editorial Committee, N.V.M.A., 36, Gordon Square, W.C.1, 2.30 p.m.

* * * * *

PERSONAL

Mr. John Francis, B.Sc., M.R.C.V.S., has resigned from the post of Research Officer to the Foot-and-Mouth Disease Research Committee to take up the appointment of Bacteriologist at the Veterinary Research Laboratories, Biological Department, Imperial Chemical (Pharmaceuticals) Ltd.

Births.—Sutton.—On July 17th, 1943, at Summer Court Nursing Home, Southborough, Kent, to Heather (*née* Streeter) and Peter Sutton, M.S.R.C.V.S.—a daughter.

Vernon.—On July 8th, 1943, to Nancy (*née* Astbury), wife of James Vernon, M.R.C.V.S., 15, Park Avenue, Potters Bar, Middlesex, a son, Paul Rodney.

Marriage.—Alexander—Purkis.—At St. Mary's, Shalford, on July 27th, 1943, Frederick Charles Alexander, M.R.C.V.S., of "Southfield," St. John's Road, Farnham, Surrey, to Barbara Mary Purkis, B.Sc., M.R.C.V.S., of "Lynchmere," The Great Quarry, Guildford, Surrey.

Forthcoming Marriage.—Cattell—Pickles.—The engagement is announced between George Thomas Cattell, M.R.C.V.S., elder son of Mr. A. J. Cattell, M.R.C.V.S., and Mrs. Cattell, of Brecon, and Margaret, eldest daughter of the late Mr. W. V. Pickles and Mrs. S. E. Pickles, of Barmouth.

R.V.C. Students' Retirement Presentation to Professor Wooldridge

On the evening of June 28th, on the lawn of Streatley House, a presentation was made to Professor Wooldridge from the students at the Royal Veterinary College. The presentation was in the form of a silver statuette of a hunter, inscribed "To Uncle George, with the affectionate regard of his students at the Royal Veterinary College, 1908-1943."

Mr. T. Groves (President, Students' Union Society) remarked on the difficulty of speaking for the hundreds of students who had passed through Final Year since Professor Wooldridge had taken up his appointment at the College. He was sure, however, that the things that they were all prompted to say on this occasion were the same things that he had heard, whilst in practice, from Professor Wooldridge's former students. His kindness and interest in students and their "doings" were renowned—"Uncle George" and his work at the College were legendary. Of the many things he would remember of his stay at College, said the President, not the least would be the Professor and his "grinds." They all most sincerely hoped that the termination of Professor Wooldridge's appointment would not mean the termination of his association with the College.

In concluding his remarks the President hoped that Professor Wooldridge would excuse their inscribing the statuette to "Uncle George." They had all felt, however, that that was the name by which he would most like to be remembered by the students.

Amidst prolonged applause and cheering the statuette was formally presented. Mrs. Wooldridge, who was also at the ceremony, was presented with a spray of pink carnations.

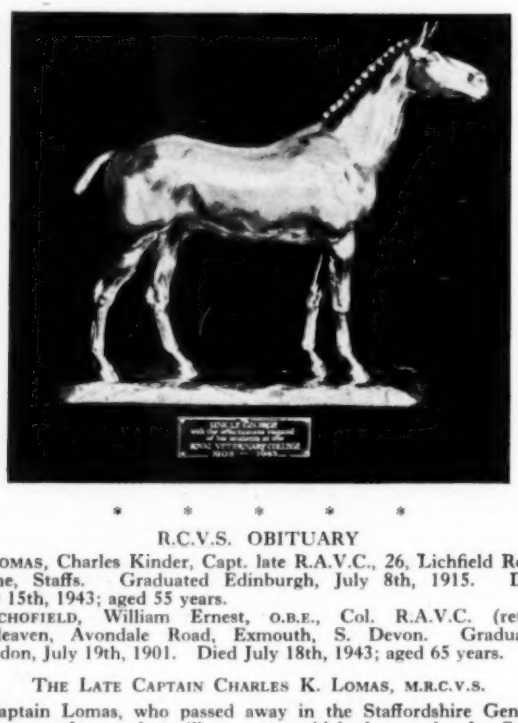
Professor Wooldridge replied by warmly thanking the students for their handsome presentation, which, he said, would be numbered amongst his most treasured possessions. He was glad that

they had chosen to put "Uncle George" on the inscription: it made him feel that he was more in the College than simply the Professor of Medicine. (Cheers and applause.)

After the ceremony Professor Wooldridge was chaired across the lawn, and then taken down to the "Swan" Inn at Streatley, where he regaled the company with tales of his earlier days at College.

Later, Professor and Mrs. Wooldridge dined with Miss Marshall, the Lady Superintendent of the Hostel, the President of the Union Society, and the 4th and 5th year students at the hostel. After Professor and Mrs. Wooldridge had been suitably toasted, they had coffee with the students in the Common Room. Later, they went on to a College dance held in Goring Village Hall.

"We were all agreed that the evening had been a memorable and happy one," writes a member of the Union in forwarding this note, and adds: "May we take this opportunity of wishing Professor Wooldridge the sincerest good wishes of all his students, past and present."



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R.C.V.S. OBITUARY

Lomas, Charles Kinder, Capt. late R.A.V.C., 26, Lichfield Road, Stone, Staffs. Graduated Edinburgh, July 8th, 1915. Died July 15th, 1943; aged 55 years.

Schofield, William Ernest, O.B.E., Col. R.A.V.C. (retd.), Treleaven, Avondale Road, Exmouth, S. Devon. Graduated London, July 19th, 1901. Died July 18th, 1943; aged 65 years.

The Late Captain Charles K. Lomas, M.R.C.V.S.

Captain Lomas, who passed away in the Staffordshire General Infirmary after a short illness, was widely known in the Stone district, having practised there for more than 20 years.

Captain Lomas commenced practice at Stone on leaving the Army in 1921. He had served with the Royal Army Veterinary Corps since 1914, and rendered distinguished service, being twice mentioned in Despatches. He was in France, and also with the Indian Army in Egypt and Palestine.

He leaves a widow, to whom will be extended the sympathy of many friends, particularly in the agricultural community.

* * * * *

RETIREMENT OF DR. JOHN R. MOHLER

It is announced that Dr. John R. Mohler, Chief of the Bureau of Animal Industry, U.S. Department of Agriculture since 1917, will retire from the Government Service at the end of July. "Impaired health, his long service in the Bureau (46 years) and his near approach to the period of compulsory retirement are understood to have been responsible for the action at this time," observes *Veterinary Medicine* in its June issue, and proceeds:—

"John R. Mohler, V.M.D., D.SC., HON. ASSOC. R.C.V.S., was born in 1875, graduated from the School of Veterinary Medicine, University of Pennsylvania, in 1896 and entered the Bureau of Animal Industry, U.S. Department of Agriculture, in 1897; was promoted to assistant pathologist in 1899; zoologist in 1901; chief of the Pathological Division of the B.A.I. in 1902; assistant chief of the Bureau in 1914 and chief in 1917. The vast extension of work in the Bureau since that date and its notable achievements—the eradication of repeated outbreaks of foot-and-mouth disease, the suppression of dourine, the eradication of bovine tuberculosis, etc.—have been under his direction. Dr. Mohler is the author of many Department bulletins, has contributed largely to periodical veterinary literature, is a frequent speaker on the programmes of veterinary, livestock and other associations. He was one of the translators of each of three English editions and one of the editors of the fourth edition of Hutyra and Marek's Special Pathology and Therapeutics of the Diseases of Domestic Animals; one of the translators of Edelman's Meat Hygiene and of Ernst's Milk Hygiene. In 1912-13, he was President of the American Veterinary Medical Association; in 1930 he was made an Honorary Associate Member of the Royal College of Veterinary Surgeons, and in 1934 was President of the XII International Veterinary Congress. In 1935 he was elected Vice-President of the Permanent Committee of the International Veterinary Congresses.

"While head of the Bureau Dr. Mohler directed the whole of the Bovine Tuberculous Eradication Campaign; the eradication of two outbreaks of foot-and-mouth disease; the major part of the Cattle Tick Eradication Campaign; instituted the Brucellosis Control Programme and the Federal supervision of the manufacture of veterinary biological products; extended research into animal diseases and enlarged the field of Bureau activities."

* * * * *

THE BRITISH MEDICAL ASSOCIATION MEMORANDUM OF EVIDENCE FOR SUBMISSION TO THE INTER-DEPARTMENTAL COMMITTEE ON MEDICAL SCHOOLS

In this week's Supplement to this journal is published the draft evidence prepared by a sub-committee of the Finance and General Purposes Committee of the N.V.M.A. for submission to the reappointed Loveday Committee, together with the discussion thereon at the Council meeting held on June 16th. In view of the great interest which has been aroused in the future of veterinary education in this country, it is particularly opportune to consider the attitude of the medical profession to post-war education as reflected in a Memorandum of Evidence submitted by the British Medical Association to the Interdepartmental Committee on Medical Schools,* bearing in mind that the organisation and functions of the medical profession differ in some respects from our own.

The B.M.A., with the assistance of an appropriate committee representative of all interests within the profession, has made a bold effort to formulate a scheme for the improvement of medical education. The committee very properly decided that it is not yet possible to form a clear picture of the kind of medical service which will result from the plans for reconstruction now under consideration, but deemed it desirable for the Association to give some indication of its views.

The main points in the memorandum centre round the feasibility of linking voluntary and local authority hospitals for the purpose of medical education with particular reference to the extent to which general practitioners might participate in the training of medical students. It is suggested that a medical teaching unit should consist of a university medical school and teaching hospitals in close proximity. Patients should be drawn from a wide area and provision made, not only for undergraduate, but also post-graduate teaching, and for research. It is hoped that when the reorganisation of a hospital service is effected, conditions of admission and of medical staffing will be the same at all centres, thus avoiding difficulties which at present prevent the use of local authority establishments for teaching purposes. The object of these changes is to enable the student to see as large a variety of cases as possible. For this reason, all medical teachers should be selected from the widest field. It is recognised that it might be especially difficult to obtain a sufficiently comprehensive training at the subsidiary centres, if all the teachers held whole-time appointments. It is, therefore, suggested that clinical teachers might be appointed on a part-time salaried basis with the right to private practice. Three types of appointment are visualised, *viz.*, (1) holders of posts who are primarily engaged in research work, *i.e.*, the post should offer a purely academic career; (2) professors of a branch of medicine or surgery, normally appointed on a whole-time salaried basis; and (3) a junior teaching staff, also whole time.

The general practitioners frequently complain that as students they were not given the opportunity of mastering special techniques and that the teaching in some subjects, often regarded as relatively unimportant, such as nutrition and dietetics, was inadequate. To meet this objection, the Association suggests that medical education would be assisted if suitable general practitioners were invited to advise on and be associated with the training of the student. They would perform a valuable function in proposing alterations to the curriculum so far as they related to subjects of particular importance to the practitioner. It is particularly stressed that more

* *British Medical Journal*. 1943. June 5th. 702.

attention should be paid to the maintenance of health as distinct from the treatment of disease.

Future education will be conditioned by the great changes which will undoubtedly take place in medical organisation. They may include the co-operation of general practitioners in group practices, the establishment of health centres combining curative treatment with preventive medicine and the provision of a comprehensive consultant and specialist service. It is suggested that present teaching methods will not produce practitioners competent to reach the higher standards which will be demanded in the future. A comprehensive consultant service would involve a substantial redistribution of practitioners and might demand an increase in the total number of specialist practitioners.

In order to broaden the outlook of the practitioner, post-graduate study should be a regular feature of general practice. Suitable courses could be initiated by using for this purpose local authority hospitals in addition to voluntary centres. Whilst recognising the varying needs of the post-graduate student, the report deals in the main with courses designed for those who need "refresher" instruction to bring their knowledge up to date. The teaching should be on practical lines, since medical men of several years' standing would benefit to a greater extent by instruction in an out-patients' department than by attending academic lectures. It is suggested that when a national scheme of medical science has been organised, periodical refresher courses should be made compulsory, provision being made for suitable payment to locum tenentes, travelling expenses and accommodation.

With regard to the number of practitioners which is likely to be required after the war, a tentative estimate is made that about 26,000 will be needed, *i.e.*, an increase of nearly 5,000 on the present figure. The Association is also strongly in favour of the principle that students should spend some time under supervision before beginning practice. This period should occur after the final examination is passed and before a licence to practise independently is granted.

With the object of encouraging the active prosecution of research in teaching centres, clinical research should be fostered by a central body analogous to the Medical Research Council.

The Association recommends that a recognised arrangement for the selection of medical students should be established, with the object of recruiting to the profession any boy or girl, from whatever section of the community, who shows a natural inclination for medicine and who has the character, health and intelligence necessary for a successful medical career. The selection should be made by a small committee after consideration of a record of the candidate's previous history, a consultation with the head master or head mistress of the school attended, and a personal interview. Every intending student should pass through the hands of this committee as a condition of admission to a medical school. The Association recommends that funds be made available to assist selected candidates who could not otherwise enter the profession.

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ROYAL ARMY VETERINARY CORPS

The following announcements are made in the issues of *The London Gazette* dated July 16th and 20th:—

The undermentioned to be Lts.: Corpl. Wallace Alexander Moore Gordon (270660), from R. Inniskilling Fus., April 7th, 1943; John David Campbell (279897), June 10th, 1943; John James Robert Hindle (279773), June 11th, 1943; Thomas Lithgow (279890), June 16th, 1943.

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LAWES' AND GILBERT'S WORK AT ROTHAMSTED

Speaking at Rothamsted on the occasion of the recent celebration of the Experiment Station's centenary, Mr. R. S. Hudson, Minister of Agriculture, said that while it was sad to reflect that we were now engaged in a life and death struggle with the German nation which produced that great chemist Liebig, from whose laboratory in Giessen sprang the germ of the idea which led up to the work of Lawes and Gilbert, in one way it was perhaps fitting that they should commemorate the centenary of Lawes' work at Rothamsted in war-time. For his researches, and in particular his discovery of the fertiliser value of super-phosphate, had rendered us invaluable assistance in the food production campaign. It was largely to the work of Lawes and Gilbert that we owed the revolution which had taken place as a result of the introduction of artificials. Their experiments established the main principles of agricultural science upon which our modern knowledge of manuring is based. They worked out the scientific reasons underlying crop rotations which had been adopted many years before on the basis of practical experience, and from that knowledge they were able to determine the chemical needs of plants and of soils. They experimented, too, on the effects of different types of food on animals and the reactions on milk and meat yields and even on manure. Their work, which they carried on together for over 50 years, had perhaps had a greater effect on British agriculture—and indeed on world agriculture—than any other agricultual research work before or since.

"It is important to remember," said the Minister later in his speech, "that Rothamsted is a station concerned with scientific research. It is a scientific laboratory whose job it is to find out and test fundamental agricultural principles. The passing on of the results of those experiments is the job of others—of the technical advisers, the agricultural teachers and demonstrators, and last but not least of the more progressive farmers themselves." Research was always a slow business, more particularly when it was in a field like agriculture when often one had to wait a whole year to find out one small particle of knowledge which must eventually be fitted into a much larger picture. It was well to stress this point. How often had the results of research been prejudiced by their premature release. "One or two of the headstrong and unwary rush in without proper knowledge, where angels would fear to tread; they fail; and the work of years is discredited perhaps quite unjustly. In research we must be prepared to wait for results." Always the objective at Rothamsted had been to find out more about crop growth and about soils. This unchanging policy had been greatly helped by the fact that over the last hundred years there had only been three directors, Sir Henry Gilbert, Sir Daniel Hall and Sir John Russell. This year Rothamsted would say good-bye to its third director and welcome in its fourth, Dr. Ogg. He would have a great tradition behind him, a great reputation to maintain and all wished him every success in his new office. It was fitting that Sir John's retirement should be marked by such an auspicious occasion as the Centenary at Rothamsted and the award to him by the Royal Society of the Albert Medal—an award also won by Sir John Lawes and Sir Henry Gilbert—must give him, like everyone else, great satisfaction.

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THE FUTURE OF THE MEDICAL SERVICES

Much that will call for reflection among members of the veterinary profession in their concern for the future development of their own profession will be found in a recent address given by Dr. Charles Hill, Deputy Secretary of the British Medical Association (*Brit. Med. J.*, 1943, June 12th, p. 732). The Government, in the debate in February last, had accepted Assumption B of the Beveridge Report and elaborated it in two ways—one that the service should be administered by a Government Department, and the other that its local administration should be through major health authorities grouped for the purpose. The Government had then started non-committal consultations with various interested groups—local authorities, hospitals and the medical profession—and had pledged itself that when it had made up its mind in a tentative way it would publish its provisional conclusions in a White Paper which would be submitted to the interested groups and to the public. No secret was made of the desire, powerful in the bureaucratic mind, to establish a whole-time State salaried service administered centrally by a Government Department and locally by grouped local authorities. One fundamental issue that must be resolved by the public was whether such a development was in the public interest.

One consideration seemed to Dr. Hill to be paramount—namely, that the relationship essential between doctor and patient was a single relationship in which the doctor's loyalty was to his patient and not to any third party, certainly not to the State. But free choice of doctor, resulting in unequal demands upon different doctors according to their attractiveness to their patients, could not continue in a whole-time State service. Free choice, with a single contractual relationship, was essential.

"Medicine, again, should be divorced as far as possible from party political affairs. They did not want a Minister whose claim to political favour would lay in the brilliance of the gloss he could put on his report of the country's stubborn good health." When he read such statements he sometimes for the moment forgot that the Minister was not himself responsible for such a result. As for local government, there were many men and women who gave fine and disinterested service in that field, but it must not be pretended that local government was satisfactory in all places. Yet in the Ministerial mind to-day there was an assumption that the centre-cum-local health authority set-up, because of democratic election, was suitable for such administration. In Dr. Hill's view the tendency to increase the number of people whose interests were associated with the State and to decrease the number who could bring to bear an independent view upon the activities of the State would threaten to disintegrate the best democracy. Dr. Hill confessed his belief that the best service was forthcoming with free choice and a system which rewarded those who rendered medical service in the proportion to the services they rendered. The man whose promotion lay with officials and committees tended insensibly to groom himself to catch their favour. The person who received care and treatment at the doctor's hands was better able to decide its value than the superior officer who made his judgment in the sterile atmosphere of the town hall. The

bulk of the conditions which brought people to a doctor were not susceptible to the exact appraisement of the stethoscope or ophthalmoscope: they were due to poverty or frustration, to difficulties at work or at home, in fact to the social set-up, and only the doctor who looked upon the patient as a living unit in the community and dealt with him in a spirit of complete confidence could render the necessary service.

The Ministry of Health was weighed down with non-health functions, and other health functions were distributed among half a dozen or more Government Departments; but there was no proposal on the Government side for comprehensiveness at the centre. Some new machinery was needed which would enable the administrator to combine with the doctor actually on the job. He believed that a corporate body such as the Unemployment Assistance Board or the War Damage Commission had much to recommend it. [This suggestion would seem to be analogous to that propounded by the President, N.V.M.A. (Dr. W. R. Wooldridge), for the control of the veterinary profession in his Presidential Address before the N.V.M.A. Annual Congress in November, 1942.] At the periphery there should be a recasting of the form and composition of local government bodies and of the areas over which they exercised authority. The recasting of local government areas should have relation to areas convenient for hospital and medical services. He deprecated leaving with any local authority the decision as to the bankruptcy or solvency of a voluntary hospital.

"We are ready," said Dr. Hill in conclusion, "to make available the existing facilities to all those who need them, and to extend those facilities. But we are not ready—and this is not the time to contemplate it—for a form of recasting in which the freedom of the profession would be exchanged for a form of civil or local government service. Quite frankly I do not think it is the time, when the most virile section of our communitty is away, to do anything more than remove any barriers which exist between the people and the existing service. . . . All I ask in the public interest is that the profession, which has done such good work on a basis of freedom, should not be converted into an ant-heap of organised mediocrity."

CORRESPONDENCE

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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SCOTLAND AND THE MILK SCHEME

Sir,—Veterinarians interested in milk production in Scotland must have read with disappointment and regret, if not with dismay, the White Paper "Measures to Improve the Quality of the Nation's Milk Supply," as it appears to postpone indefinitely the time when the profession will assume its legitimate place in milk control work in that country. That neither the Department of Health nor of Agriculture for Scotland has a veterinary surgeon on its staff accentuates the gravity of the situation. It is poor consolation to know that the "not unsatisfactory" position quoted is due largely to veterinary activity under local authorities prior to its unfortunate removal by the changes of 1938.

Moreover, it would be interesting to know on what grounds it was determined officially that the position in Scotland is such as to make major changes unnecessary. At meetings and discussions on the subject during the past year I have heard a great deal of criticism, except from representatives of the Departments concerned, who, obviously, were determined to preserve the existing structure at all costs. To believe that the average person in Scotland who has given the matter earnest consideration is satisfied with the position would be wrong.

Again, the statement that, "Since 1938 the Department of Health for Scotland have maintained a staff of milk inspectors . . . uniformity of standards," sounds well, but one is prompted to point out that the present strength of the staff is such that it can have no real significance, and that, even when the service was in full operation, the members had not the standing with either local authorities or producers that would have been the case had they been veterinary surgeons.

The position in Northern Ireland once again points to the more enlightened policy in such things pursued in that country, and the profession should be grateful to a Government that demonstrates so fully its faith in us.

One wonders what is the limit of possibility when two policies so antagonistic as those outlined for Northern Ireland and for Scotland can be equally acceptable within the terms of a single White Paper.

Perhaps there is an explanation, and it is a pity that an account of what led to the exclusion of Scotland from the general scheme is unlikely to be available.

Yours faithfully,
JOHN C. GRANT.

The North of Scotland College of Agriculture,
Veterinary Department,
Marischal College,
Aberdeen.
July 22nd, 1943.

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VETERINARY SURGEONS ACTS (AMENDMENT) BILL

Sir,—Locally, a very few members have expressed misgivings as to what might constitute acceptable recommendation on behalf of an applicant for admission to the proposed register of animal practitioners. Are the terms set out in the Draft sufficiently wide?

The question may have a wider interest; accordingly I ask leave to put a purely personal point of view.

Law rests upon law. It is statutory that all persons in receipt of income—earned or unearned—taxable or untaxable in amount or nature—shall remit, annually, a return thereon to H.M. Commissioners of Income and Land Tax under terms as set out by the Commissioners. Failure to do so is a misdemeanour on each count.

Regardless of all other personal evidence an applicant could be called upon to declare that he had done so for not less than the period upon which he founds claim for admission to the proposed register. The information submitted by a subject to the Commissioners is confidential, but may be released by the subject providing he grants warrant. In a matter of such personal importance no applicant of good faith would hesitate to grant warrant to the R.C.V.S. to test his statements before the Commissioners:—

That he had made returns as declared.

That said returns show that his chief gainful livelihood was derived from the treatment of animals.

The above imposes no hardship upon any applicant. On the contrary, there is precedent in law: that an offence by a member of the Royal College of Veterinary Surgeons against Income and Land Tax is also conduct disgraceful in a professional respect.

It is my considered opinion that the terms of admission as set out in the Draft Bill are sufficiently wide and reasonable at law, which rests upon law, to cover the good faith of the applicant in his relation to the R.C.V.S.

Yours faithfully,
GEORGE DYKES.

Glasgow Veterinary College,
83, Buccleuch Street,
Glasgow, C.3.
July 3rd, 1943.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Parasitic Mange*	Sheep Scab	Swine Fever
June 16th to 30th, 1943...	11	—	—	1	24
Corresponding period in—					
1942 ...	15	23	—	1	17
1941 ...	9	—	2	3	34
1940 ...	11	—	—	—	216
Total Jan. 1st to June 30, 1943	164	10	6	100	258
Corresponding period in—					
1942 ...	172	45	26	117	232
1941 ...	274	255	10	134	795
1940 ...	281	19	14	115	2,111

NOTE.—The figures for the current year are approximate only.
* Excluding outbreaks in Army Horses.

Tuberculosis (Attested Herds) Schemes

The number of Attested Herds, *i.e.*, herds officially certified as free from Tuberculosis as at June 30th, 1943, was as follows:—

England	Wales	Scotland	Total (Great Britain)
3,901	8,735	3,442	16,078